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10/585,109	01/18/2007	Kazuhito Sato	Q95810	5098

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EXAMINER	
HANOR, SERENA L	
ART UNIT	PAPER NUMBER
1793	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/585,109	SATO ET AL.	
	Examiner	Art Unit	
	SERENA L. HANOR	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *02 June 2008*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-4 and 7-20* is/are pending in the application.

4a) Of the above claim(s) *7-14* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4 and 15-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *01/18/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

i. Applicant's election with **partial traverse** of Group II in the reply filed on 06/02/2088 is acknowledged.

ii. Examiner agrees with Applicant's arguments regarding claim 1 as a product-by-process claim and has therefore added claim 1 to Group II, which now consists of claims 1-4 and 15-20.

iii. A telephone conversation with Mr. Peter Olexy on 07/29/2008 resulted in the election of the new Group II, claims 1-4 and 15-20, **without** traverse.

iv. Claims 7-14 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 06/02/2008.

Specification

The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification. For example, p. 14 and 24 are replete with grammatical errors.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

The person having ordinary skill in the art has the capability of understanding the scientific and engineering principles applicable to the claimed invention. The references of record in this application reasonably reflect this level of skill.

i. Claims 1, 2-4 and 15-20 are rejected under 35 U.S.C. 103(a) as obvious over Fukunaga et al. (WO 02/078840, using U.S. Patent No. 7,378,368 B2 as an English translation).

Fukunaga et al. disclose a hydrocarbon-producing catalyst obtainable by supporting a ruthenium compound and an alkali, alkaline earth metal compound, and/or rare earth metal compound (col. 6 lines 29-43, col. 6 line 61-col. 7 line 9, col. 7 line 32-col. 8 line 10, *Applicants' claims 3 and 15*), which is selected from a sodium compound (col. 7 lines 32-54, *Applicants' claims 18, 19 and 20*), on a support composed of a manganese oxide and an aluminum oxide (col. 4 lines 51-63, col. 5 lines 4-37), and which satisfies the following characteristic:

> the aluminum oxide being an aluminum oxide in which pore volume formed by pores having a pore diameter of 8 nm or more accounts for 50% or more of total pore volume (the aluminum oxide is made by the same processes as that of the instant invention and has a similar pore volume, Specification p. 14, 24 and 25) (col. 5 lines 4-24, col. 5 line 51-col. 6 line 12, *Applicants' claim 1*).

Before the treatment with the aqueous alkaline solution and the calcination treatment:

a) the supported amount of the ruthenium compound is 0.5-5% by weight in terms of ruthenium metal on the basis of the catalyst (col. 8 lines 20, col. 25 Table 1-1 Catalyst 3, *Applicants' claim 2*),

b) the supported amount of the alkali metal compound, the alkaline earth metal compound, and/or the rare earth metal compound is 0.01-3% by weight in terms of oxide on the basis of the catalyst (col. 8 lines 24-26, col. 25 Table 1-1 Catalyst 3, *Applicants' claims 4 and 16*), and

c) the ratio of the manganese compound is 10-70% by weight on the basis of the catalyst (col. 4 lines line 64-65, col. 25 Table 1-1 Catalyst 3, *Applicants' claim 17*).

Fukunaga et al. differ from the instant invention in that they do not disclose the pore diameter of the aluminum oxide or that said pore diameter accounts for 50% or more of the volume of the aluminum oxide.

It would have been obvious to one of ordinary skill in the art at the time of the invention **to have recognized** that the aluminum oxide of Fukunaga et al. (col. 5 lines 4-24, col. 5 line 51-col. 6 line 12) *would have similar physical properties to that of the instant invention*, as per Applicants' claim 1, **because** they are made by the same processes under similar reaction conditions and have similar pore volumes, and this ultimately results in the optimization of the catalytic activity of the aluminum oxide (Applicants' specification p. 14, 24 and 25).

Fukunaga et al. differ from the instant invention in that they disclose the catalyst as being treated with an aqueous alkaline solution (col. 8 lines 39-57) OR being subjected to a calcination treatment in air at a temperature of 400-800C (col. 8 lines 58-61). Calcining is preferably not carried out because the calcining of the ruthenium

compound brings about scattering, oxidation and coagulation, which reduce the catalytic activity of the catalyst (col. 8 lines 31-38). Therefore, a new method for decomposing the respective component salts, which prevents the components in the forms of chloride and nitrate from being decomposed in the reactor and flowing out, is utilized. Said method involves reacting the components with an aqueous alkaline solution in order to convert them to hydroxides (col. 8 lines 39-57). Then, they are washed with water and dried at 80°C (col. 11 lines 30-36).

It would have obvious to one of ordinary skill in the art at the time of the invention **to have modified** the treatment of the catalyst of Fukunaga et al. *by increasing the temperature of the drying* (col. 8 lines 31-61, col. 11 lines 30-36), as per Applicants' claim 1, **because** differences in concentration or temperature will not support the patentability of subject matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. "[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation." *In re Aller*, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). Furthermore, Fukunaga et al. disclose calcining in air at 400-800°C (col. 8 lines 58-61), and there is no indication that the aqueous alkaline solution-treated catalyst may not be subsequently calcined as per methods well known in the art.

Fukunaga et al. differ from the instant invention in that they disclose the supported amount of the alkali, alkaline, and/or rare earth metal compound as being 1-20% by weight (col. 8 lines 24-26) and the ratio of the manganese compound as being

5-95% by weight (col. 4 lines 64-66). However, Table 1-1 Catalyst 3 (col. 25) discloses a supported amount of Mg of 2% by weight and a MnO_2 ratio of 10% by weight.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have modified** the catalyst of Fukunaga et al. *by adjusting the supported amount of alkali, alkaline earth, and/or rare earth metals, and the ratio of the manganese compound* (col. 14 lines 16-36), as per Applicants' claims 2, 4, 16 and 17, **because** in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

ii. Claims 1 and 2 are rejected under 35 U.S.C. 103(a) as obvious over Kugler et al. (U.S. Patent No. 4,206,134).

Kugler et al. disclose a hydrocarbon-producing catalyst obtainable by supporting a ruthenium compound (col. 1 lines 30-35) on a support composed of a manganese oxide and an aluminum oxide (col. 1 line 66-col. 2 line 17), the supported amount of the ruthenium compound being 0.5-5% by weight in terms of ruthenium metal on the basis of the catalyst (col. 1 lines 38-48, *Applicants' claim 2*),

Kugler et al. differ from the instant invention in that they do not disclose the aluminum oxide being an aluminum oxide in which the pore volume formed by pores having a pore diameter of 8 nm or more accounts for 50% or more of total pore volume.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have known that** the catalyst of Kugler et al. *would utilize a porous aluminum oxide support*, as per Applicants' claim 1, **because** "[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.*, 190 F.3d 1342, 1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). See MPEP 2112 [R-3] I.

Kugler et al. differ from the instant invention in that they disclose the supported amount of the ruthenium compound as 0.1-5% by weight, or preferably 0.5-3% by weight.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have modified** the catalyst of Kugler et al. *by adjusting the supported amount of ruthenium compound* (col. 1 lines 34-38), as per Applicants' claim 2, **because** in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In*

re Peterson, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

Claim Rejections - 35 USC § 102/103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

i. Claims 1, 2-4 and 15-17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Kepner et al. (U.S. Patent No. 6,383,273 B1).

Kepner et al. disclose a hydrocarbon-producing catalyst obtainable by supporting a ruthenium compound (col. 12 lines 19-56) and an alkali metal compound, an alkaline earth metal compound, and/or a rare earth metal compound (col. 12 lines 19-48, *Applicants' claims 3 and 15*), on a support composed of a manganese oxide and an aluminum oxide (col. 8 line 54-col. 9 line 13), and which satisfies at least one of characteristics (1) and (2):

(1) the catalyst being treated with an aqueous alkaline solution and subsequently subjected to calcination treatment in the air at 150-500°C (col. 14 line 52-col. 15 line 63),

(2) the aluminum oxide being an aluminum oxide in which pore volume formed by pores having a pore diameter of 8 nm or more accounts for 50% or more of total pore volume (col. 10 lines 47-52, *Applicants' claim 1*).

Before the treatment with the aqueous alkaline solution and the calcination treatment (1):

a) the supported amount of the ruthenium compound is 0.5-5% by weight in terms of ruthenium metal on the basis of the catalyst (col. 14 lines 16-36, *Applicants' claim 2*),

b) the supported amount of the alkali metal compound, the alkaline earth metal compound, and/or the rare earth metal compound is 0.01-3% by weight in terms of oxide on the basis of the catalyst (col. 14 lines 16-36, *Applicants' claims 4 and 16*), and

c) the ratio of the manganese compound is 10-70% by weight on the basis of the catalyst (col. 14 lines 16-36, *Applicants' claim 17*).

Kepner et al. differ from the instant invention in that they do not specifically disclose that the pore diameter of 8 nm or more of the aluminum oxide accounts for 50% or more of the total volume of the aluminum oxide.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have expected** the aluminum oxide of Kepner et al. *to have pores with a diameter of 8 nm or more accounting for 50% or more the total volume* (col. 10 lines 47-52), as per Applicants' claim 1, **because** Kepner et al. disclose that the median pore size is 3.5-30

35 nm, so a median pore size greater than 8 nm falls within said range, and therefore more than 50% of the volume could be attributable to pores with a diameter of 8 nm or more. In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5].

Kepner et al. differ from the instant invention in that the ranges of the supported amounts of ruthenium, the supported amounts of alkali/alkaline earth/rare earth metal, and the ratio of the manganese compound overlap and/or lie inside those of the instant invention.

It would have obvious to one of ordinary skill in the art at the time of the invention **to have modified** the catalyst of Kepner et al. *by adjusting the supported amount of ruthenium compound, the supported amount of alkali, alkaline earth, and/or rare earth metals, and the ratio of the manganese compound* (col. 14 lines 16-36), as per Applicants' claims 2, 4, 16 and 17, **because** in the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a *prima facie* case of obviousness exists. *In re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); *In re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990). Furthermore, "[A] prior

art reference that discloses a range encompassing a somewhat narrower claimed range is sufficient to establish a prima facie case of obviousness." *In re Peterson*, 315 F.3d 1325, 1330, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003). See MPEP 2144.05 [R-5]. Finally, the adsorbent may be a mixed oxide compound of Ru and an alkali, alkaline earth, and/or a rare earth metal compound, and said adsorbent is 5-95% by weight of the catalyst (col. 14 lines 16-36). Therefore, this range encompasses/overlaps the ranges of the Ru and the alkali, alkaline earth, and/or rare earth metal compound of the instant invention.

Conclusion

Group II, claims 1-4 and 15-20, have been elected without traverse.

Claims 7-14 have been withdrawn as being drawn to a nonelected invention.

Claims 1, 2-4 and 15-20 have been rejected.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SERENA L. HANOR whose telephone number is (571)270-3593. The examiner can normally be reached on Monday - Thursday 8:00 AM - 5:30 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571) 272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

SLH
07/29/08

/Timothy C Vanoy/
Primary Examiner, Art Unit 1793